

REMARKS

In the above-referenced Office Action, the Examiner has rejected Claims 1-4, 8-9, 11-14, 18-20, 31-34, 38-40, 41-44, 48-50, 61-64, 68-70, 71-74, 78-80, 91-95 and 96-105 under 35 U.S.C. §103(a) as being unpatentable over R.J. Palmer (IEEE CH2789-6/89/0000-0151, 1989) in view of Auber (U.S. 6,175,725). Applicants respectfully disagree and traverse the above rejections.

The present invention presents a novel mechanism and method for producing a reference signal phase-locked to a carrier signal in a remote unit. As such, the Claims (as recited in independent Claims 1, 31, 61 and 91 and included by dependence by all other Claims) recite a phase comparison within a receiver, of a second received signal based on a phase reference coherent with a first transmitted signal at a remote transmitter. The means by which the phase coherence is achieved in the embodiments claimed in Claims 1, 31, and 61) is via a loop generated between the received and the remote transmitter and using a different set of frequencies for full duplex communication and each of said claims includes functional limitations requiring that the second set of synthesized carrier frequencies differ from the first set that was transmitted from the remote transmitter.

Specifically, Claim 1 recites a wireless communication device comprising a transmitter that transmits a discrete carrier frequency sequence and a receiver that receives a second discrete carrier frequency sequence having a correspondence, yet a difference between the first and second sequence. The frequency difference makes it possible to receive and transmit a corresponding set of frequencies simultaneously and the

simultaneous reception and transmission makes it possible to transmit a first sequence that is phase-locked to the second sequence. Claim 31 recites a method having the same limitations as described above for the wireless device, i.e. transmitting a first carrier sequence while receiving a second carrier sequence having corresponding, but different frequencies. Claim 61 recites a method of operation of the remote device, i.e. transmitting the first sequence and receiving a second sequence having corresponding, but different frequencies.

Conversely, Auber discloses only a system that does not include the above-described reception/transmission loop - in fact, Auber discloses only a receiver - and therefore does not teach or suggest transmitting a different set of carrier frequencies generated in phase-lock with carrier frequencies received at the receiver. Auber uses code sequence/carrier relationship information to extract a phase reference for controlling its receiver's own internal control loops, not a loop formed with an external receiver. Thus, it is not possible that Auber suggests the claimed invention, and neither does Palmer in view of Auber, as the disclosure of Palmer teaches a technique based on reception-only detection of received signals. Specifically, Palmer on page 152 under the section entitled "Dynamic Operation" discusses detection based on a count frequency interleaved amongst other frequencies in the received signal in order to determine phase progression. Thus, Palmer and Auber as well as their combination teach away from the claimed invention, as their teaching presumes a priori knowledge of the signal relationships their receivers receive, while the present invention provides a system in which the

transmit/receive, loop determines sets of corresponding, but differing carrier frequencies that are adaptable to devices having differing base sequence frequency offsets and initial carrier frequencies and thus provides a novel advantage over the systems disclosed in the references. Thus Applicants believe that Claims 1, 31 and 61 as well as all claims depending therefrom should be allowed.

Claim 41 recites transmitting a single carrier frequency, but receiving a second signal having a sequence of carrier frequencies different from the single carrier frequency and for the same reasons as stated above, forms a transmission/reception loop that is not taught or suggested by the Auber or Palmer. Similarly, Claim 71 teaches a method having the limitations of a single carrier transmission with a differing carrier sequence transmission. Therefore, for the reasons stated above with respect to Claims 1, 31 and 61 the combination of elements of Claims 41 and 71 are not taught or suggested by the references. Thus Applicants believe that Claims 41 and 71 as well as all claims depending therefrom should be allowed.

Claim 91 recites a method requiring transmission of a signal in phase coherence with a received sequence of carrier frequencies, so that a remote transceiver may be phase-locked for performing distance measurements. For the same reasons stated above with respect to Claims 1, 31 and 61 the combination of elements of Claim 91 is not taught or suggested by the references. Thus Applicants believe that Claim 91 and claims depending therefrom should be allowed.

CONCLUSION

In conclusion, Applicants respectfully submit that this Response, in view of the Remarks offered in conjunction therewith, is fully responsive to all aspects of the objections and rejections tendered by the Examiner in the Office Action. Applicants respectfully submit that they have demonstrated that the above-identified Patent Application, including Claims 1-4, 8-9, 11-14, 18-20, 31-34, 38-40, 41-44, 48-50, 61-64, 68-70, 71-74, 78-80, 91-95 and 96-105, is in condition for allowance. Such action is earnestly solicited.

Respectfully submitted,



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